

CLAIMS

What is claimed is:

1. An evaporator for a refrigerated merchandiser comprising:
a first fin and tube heat exchanger coil having a refrigerant inlet and a refrigerant outlet, said first fin and tube heat exchanger coil having a first fin density;
and
a second fin and tube heat exchanger coil having a refrigerant inlet and a refrigerant outlet, said second fin and tube heat exchanger coil having a second fin density, said second fin density being greater than said first fin density, the inlet of said second fin and tube heat exchanger coil connected in refrigerant flow communication with the outlet of said first fin and tube heat exchanger coil.
2. An evaporator for a refrigerated merchandiser as recited in claim 1 wherein said first fin and tube heat exchanger coil has a fin density of less than 6 fins per inch.
3. An evaporator for a refrigerated merchandiser as recited in claim 1 wherein said second fin and tube heat exchanger coil has a fin density of at least 6 fins per inch.
4. An evaporator for a refrigerated merchandiser comprising:
a first heat exchanger having a refrigerant inlet and a refrigerant outlet, said first heat exchanger being a non-finned tube coil heat exchanger; and a second heat exchanger having a refrigerant inlet and a refrigerant outlet, the inlet of said second fin and tube heat exchanger coil connected in refrigerant flow communication with the outlet of said first heat exchanger, said second heat exchanger being a fin and tube heat exchanger coil having a fin density of at least 6 fins per inch.

5. A refrigerated merchandiser including a cabinet defining a product display area and having a compartment separate from product display area, an air circulation circuit connecting said product display area and said compartment in air flow communication, and an evaporator and an air circulating fan disposed within said compartment in cooperative arrangement whereby air flow passing through said evaporator passes in heat exchange relationship with a refrigerant passing through said evaporator, characterized in that said evaporator comprises:

a first fin and tube heat exchanger coil having a refrigerant inlet and a refrigerant outlet, said first fin and tube heat exchanger coil having a relatively low fin density; and

a second fin and tube heat exchanger coil having a refrigerant inlet and a refrigerant outlet, said second fin and tube heat exchanger coil having a relatively high fin density, the inlet of said second fin and tube heat exchanger coil connected in refrigerant flow communication with the outlet of said first fin and tube heat exchanger coil.

6. A refrigerated merchandiser as recited in claim 5 wherein said first fin and tube heat exchanger coil has a fin density of less than 6 fins per inch.

7. A refrigerated merchandiser as recited in claim 5 wherein said second fin and tube heat exchanger coil has a fin density of at least 6 fins per inch.

8. A refrigerated merchandiser as recited in claim 5 wherein said second fin and tube heat exchanger coil is disposed upstream of said first fin and tube heat exchanger coil with respect to air flow through said evaporator.

9. A refrigerated merchandiser as recited in claim 5 wherein in said first fin and tube heat exchanger coil the refrigerant is directed in physically parallel and thermodynamically counter flow relationship with the air flow passing therethrough.

10. A refrigerated merchandiser as recited in claim 5 further characterized in that in said second fin and tube heat exchanger coil the refrigerant is directed in physically counter thermodynamically parallel flow relationship with air flow passing therethrough.

11. A refrigerated merchandiser as recited in claim 5 further characterized in that said second fin and tube heat exchanger coil has a fin density in the range of 6 fins per inch to 15 fins per inch.

12. In a refrigerated merchandiser system including a cabinet defining a product display area and having a compartment separate from product display area, an air circulation circuit connecting said product display area and said compartment in air flow communication, a fin and tube heat exchanger coil evaporator and an air circulating fan disposed within said compartment in cooperative arrangement whereby air flow passing through said evaporator passes in heat exchange relationship with a refrigerant passing through said evaporator, and a refrigeration system operatively associated with said evaporator, a method of operation comprising:

passing refrigerant from the refrigeration system through a first section of said evaporator;

passing refrigerant from the first section of said evaporator to through a second section of said evaporator;

passing refrigerant from the second section of said evaporator back to the refrigeration system;

circulating air from the product display area first through the second section of said evaporator, thence through the first section of said evaporator and thence back to the product display area of said refrigerated merchandiser; and

maintaining the second section of said evaporator at a temperature greater than 32 degrees F.

13. A method of operation as recited in claim 12 further comprising providing the second section of said evaporator with a fin density of at least 6 fins per inch and providing the first section of said evaporator with a fin density of less than 6 fins per inch.